

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

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Listing of Claims:

Claim 1 (previously presented): A method for electrically isolating shallow trenches between components on the surface of a semiconductor wafer comprising:

- 10 (a) forming a plurality of first-type trenches and second-type trenches on a semiconductor substrate, each of the first-type trenches having a width greater than a predetermined size that is greater than a width of each of the second-type trenches;
- 15 (b) performing a photolithographic process to form at least one photoresist pattern in each of the first-type trenches;
- (c) performing an etching process to form at least one dummy and a plurality of third-type trenches in each of the first-type trenches with the photoresist patterns as masks, and to deepen each of the second-type trenches;
- (d) stripping the photoresist patterns;
- 20 (e) forming a dielectric layer over the surface of the semiconductor wafer, wherein the dielectric material of the dielectric layer fills the first-type trenches, the second-type trenches, and the third-type trenches on the surface of the semiconductor wafer;
- (f) condensing the dielectric layer; and
- 25 (g) performing a planarization process to polish the surface of the semiconductor wafer for aligning the surface of the dielectric layer inside each of the first-type trenches and the second-type trenches with the surface of each component on the semiconductor wafer.

- 30 Claim 2 (previously presented): The shallow trench isolation method of claim 1 wherein the predetermined size is about 2 μm .

Claim 3 (original): The shallow trench isolation method of claim 1 wherein the preferred height of any dummy is around 300 Å to 500 Å.

5 Claim 4 (original): The shallow trench isolation method of claim 1 wherein the planarization process performed on the dielectric layer surface is a chemical mechanical polishing process.

10 Claim 5 (previously presented): The shallow trench isolation method of claim 1 wherein each component on the semiconductor wafer surface comprises a Si substrate, a pad oxide layer above the Si substrate, and a pad nitride layer above the pad oxide layer, and the planarization process performed on the dielectric layer surface makes this surface inside each of the first-type trenches and the second-type trenches align approximately with the pad nitride layer of each component on the semiconductor wafer surface; wherein the shallow trench isolation method further comprises:
15 performing a second planarization process to strip off the pad oxide layer and pad nitride layer from each component, and make the surface of the dielectric layer inside each of the first-type trenches and the second-type trenches approximately align with the surface of the Si substrate of each component.

20 Claim 6 (previously presented): The shallow trench isolation method of claim 5 wherein the bottom of each of the first-type trenches and the second-type trenches on the semiconductor wafer is formed by a Si substrate, and each dummy is also made of Si.

25 Claim 7 (previously presented): The shallow trench isolation method of claim 6 wherein after the second planarization process, the dielectric material formed in each of the first-type trenches remains covered over each Si dummy for electrical isolation.

30 Claim 8 (original): The shallow trench isolation method of claim 5 wherein the second planarization process is an etch process.

Claim 9 (original): The shallow trench isolation method of claim 5 wherein the pad

oxide layer and pad nitride layer are used as a mask or a sacrificial layer during a previous ion implantation or heat diffusion process.

5 Claim 10 (original): The shallow trench isolation method of claim 1 wherein the dielectric layer is condensed by using an annealing process.

10 Claim 11 (original): The shallow trench isolation method of claim 10 wherein the dielectric layer is deposited on the surface of the semiconductor wafer by using a chemical vapor deposition process and the dielectric layer comprises $\text{Si}(\text{OC}_2\text{H}_5)_4$ (tetra-ethyl-ortho-silicate, TEOS) in it.

Claim 12 (previously presented): The shallow trench isolation method of claim 1 wherein each dummy is formed at the bottom of each of the first-type trenches.

15 Claims 13-19 (Canceled)

Claim 20 (withdrawn): A method for forming electrically isolating shallow trenches between components on the surface of a semiconductor wafer comprising:

- 20 (a) providing a semiconductor substrate having at least a first-type trench region used to form a first-type trench, and a second-type trench region used to form a second-type trench, the first-type trench having a width greater than a predetermined value that is greater than a width of the second-type trench;
- 25 (b) forming a first photoresist pattern on the semiconductor substrate exposing the first-type trench region and the second-type trench region, and at least a second photoresist pattern on the first-type trench region, the second photoresist pattern having a smaller height than the first photoresist pattern;
- 30 (c) etching the first-type trench region and the second-type trench region to form the first-type trench and the second-type trench with the first photoresist pattern as a mask, and to form at least one dummy at a bottom of the first-type trench with the second photoresist pattern as a mask;

- 5 (d) stripping the first photoresist pattern and the second photoresist pattern;
(e) forming a dielectric layer over the surface of the semiconductor substrate,
wherein the dielectric material of the dielectric layer fills the first-type
trench and the second-type trench on the surface of the semiconductor
substrate;
(f) condensing the dielectric layer; and
(g) performing a planarization process to polish the surface of the
semiconductor wafer for aligning the surface of the dielectric layer inside
each of the first-type trench and the second-type trench with the surface of
each component on the semiconductor substrate.
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Claim 21 (withdrawn): The method of claim 20 further comprising:

- forming a photoresist layer over the semiconductor wafer; and
utilizing an optical mask of different sets of light penetration capability to
perform a photolithography process on the photoresist layer for simultaneously
forming the first photoresist pattern and the second photoresist pattern in the
photoresist layer.
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Claim 22 (withdrawn): The method of claim 20 further comprising:

- forming a photoresist layer over the semiconductor wafer;
exposing the photoresist layer to light through a first optical mask of
different sets of light penetration capability to define the first photoresist pattern;
exposing the photoresist layer to light through a second optical mask of
different sets of light penetration capability to define the second photoresist
pattern; and
developing the photoresist layer to form the first photoresist pattern and the
second pattern.
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Claim 23 (withdrawn): The method of claim 20 wherein the predetermined value is
about 2 μm .

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Claim 24 (withdrawn): The method of claim 20 wherein a preferred height of any

dummy is around 300 Å to 500 Å.